

# Melanoma and Heuristics in Dermatology



[allergieundhaut.ch](http://allergieundhaut.ch)

# YOU WOULDN'T IGNORE THIS.



## SO DON'T IGNORE THESE:



### SKIN CANCER CAN BE SEEN

AND IF IT'S CAUGHT EARLY, IT CAN BE TREATED SUCCESSFULLY.

VISIT [EUROMELANOMA.ORG](http://EUROMELANOMA.ORG) TO LEARN THE SIGNS OF SKIN CANCER SO YOU CAN PROTECT YOURSELF.

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WITH SUPPORT FROM



**So you should not miss this**



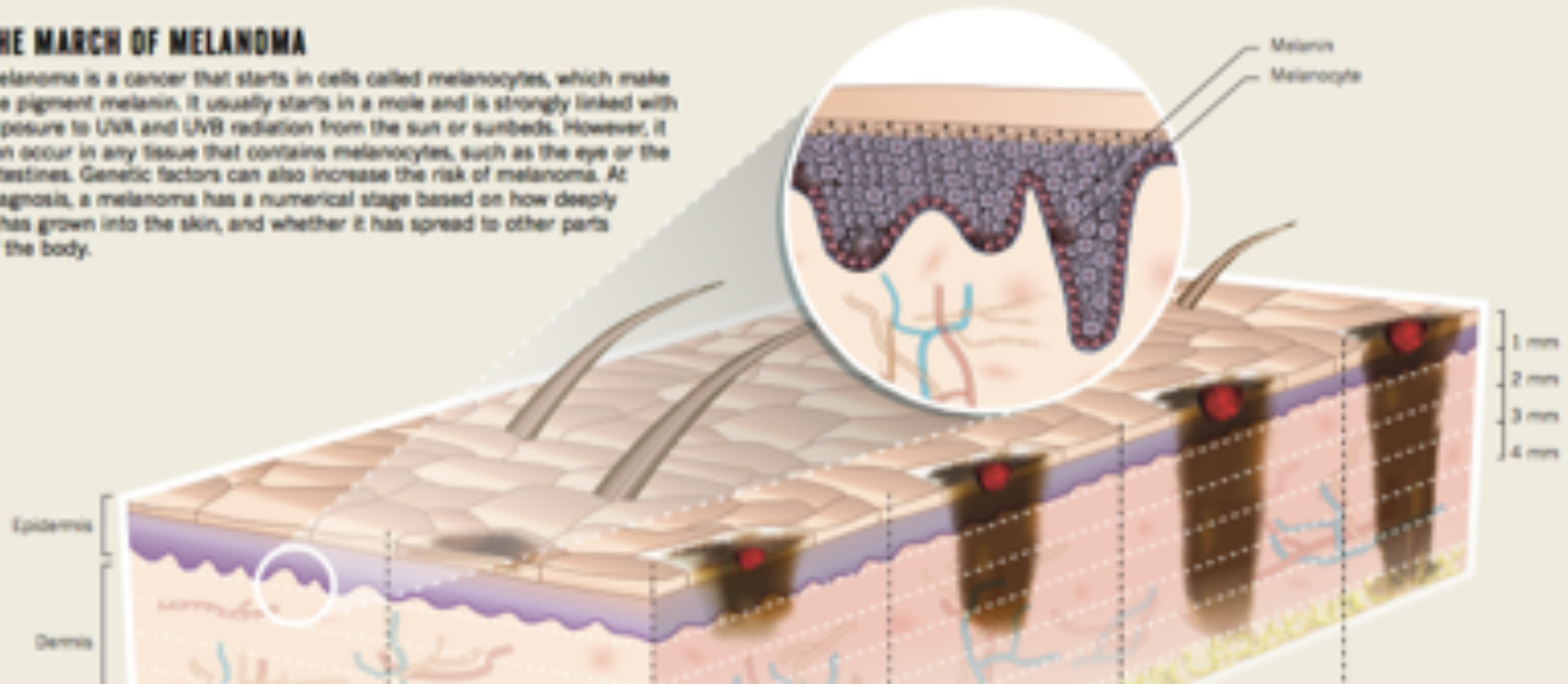
# So what is melanoma ?

## THE CANCER THAT RISES WITH THE SUN

*Melanoma is an aggressive cancer that normally starts in the skin. It can strike anyone but is most common in people with pale skin, and it is getting more common. By David Holmes.*

### THE MARCH OF MELANOMA

Melanoma is a cancer that starts in cells called melanocytes, which make the pigment melanin. It usually starts in a mole and is strongly linked with exposure to UVA and UVB radiation from the sun or sunbeds. However, it can occur in any tissue that contains melanocytes, such as the eye or the intestines. Genetic factors can also increase the risk of melanoma. At diagnosis, a melanoma has a numerical stage based on how deeply it has grown into the skin, and whether it has spread to other parts of the body.





# Melanoma

## It is deadly



**200**

**Melanoma**

**It's common**



**1800**

# Melanom: Inzidenz & Mortalität

Glazer et al, *JAMA Dermatol* 2017; 153: 225-226 (3)

Figure 1. Lifetime Risk of Developing Invasive Melanoma in the United States



# Melanom: Inzidenz & Mortalität

*Glazer et al, JAMA Dermatol 2017; 153: 225-226 (3)*

## Lebenszeit-Risiko

Invasive Melanome: 1:54

In-situ Melanome: 1:58

Alle Melanome: 1:24



## Digital Doctor of 2017: Key Medical Disruptors

From [Medscape Family Medicine](#)

early detection is critical, as the  
**the survival rate drops from 99%**  
**to 14%** if detected in later stages



# MELANOMA GROWTH PHASES



**Radial Growth Phase**



**Vertical Growth Phase**



**the single most powerful thing**

**to avert**

**the most dangerous thing on the  
skin**



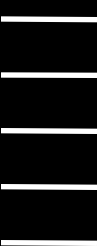




## 2 Simple Steps

The ABCDE rule

The ugly duckling sign

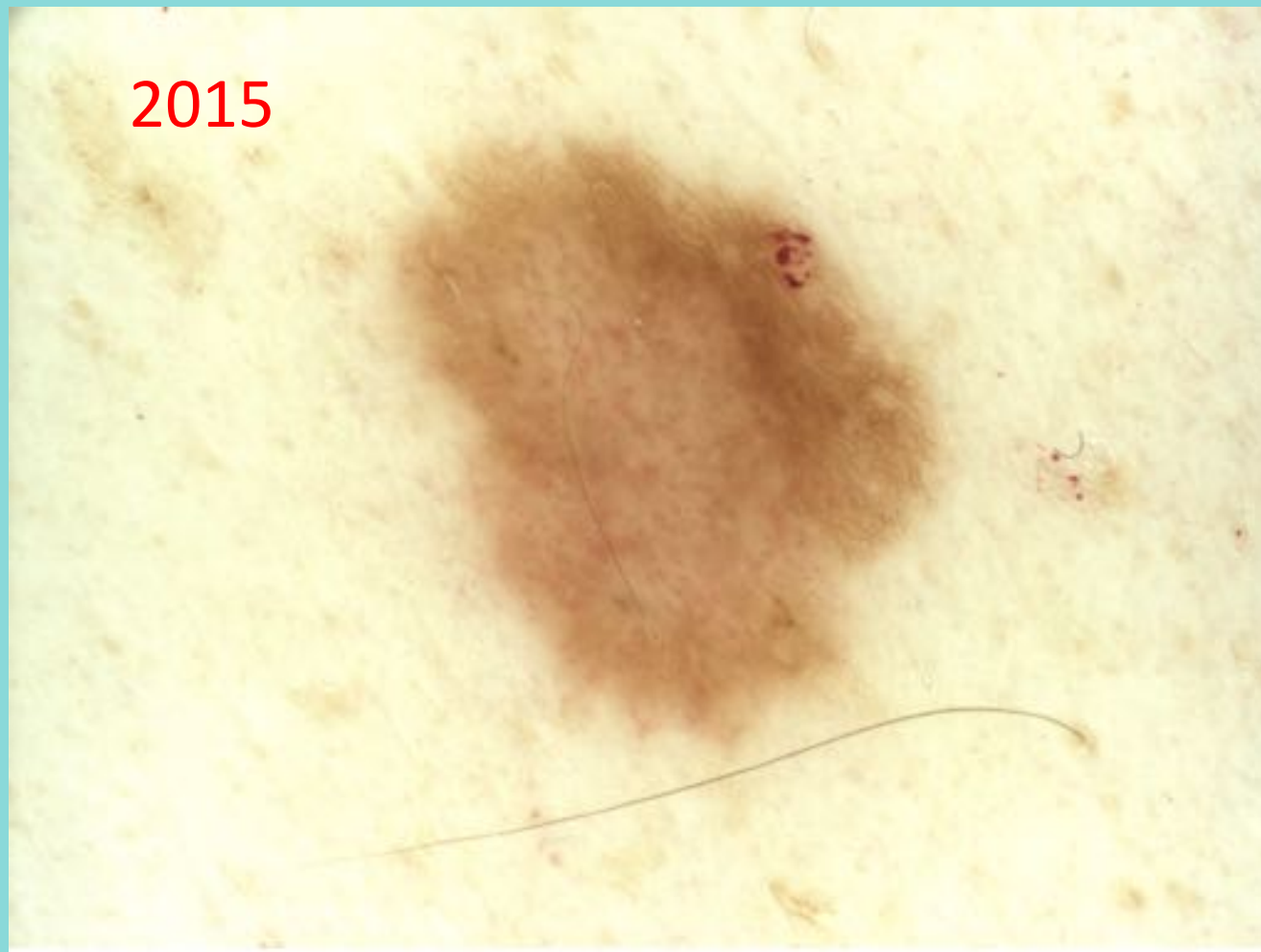


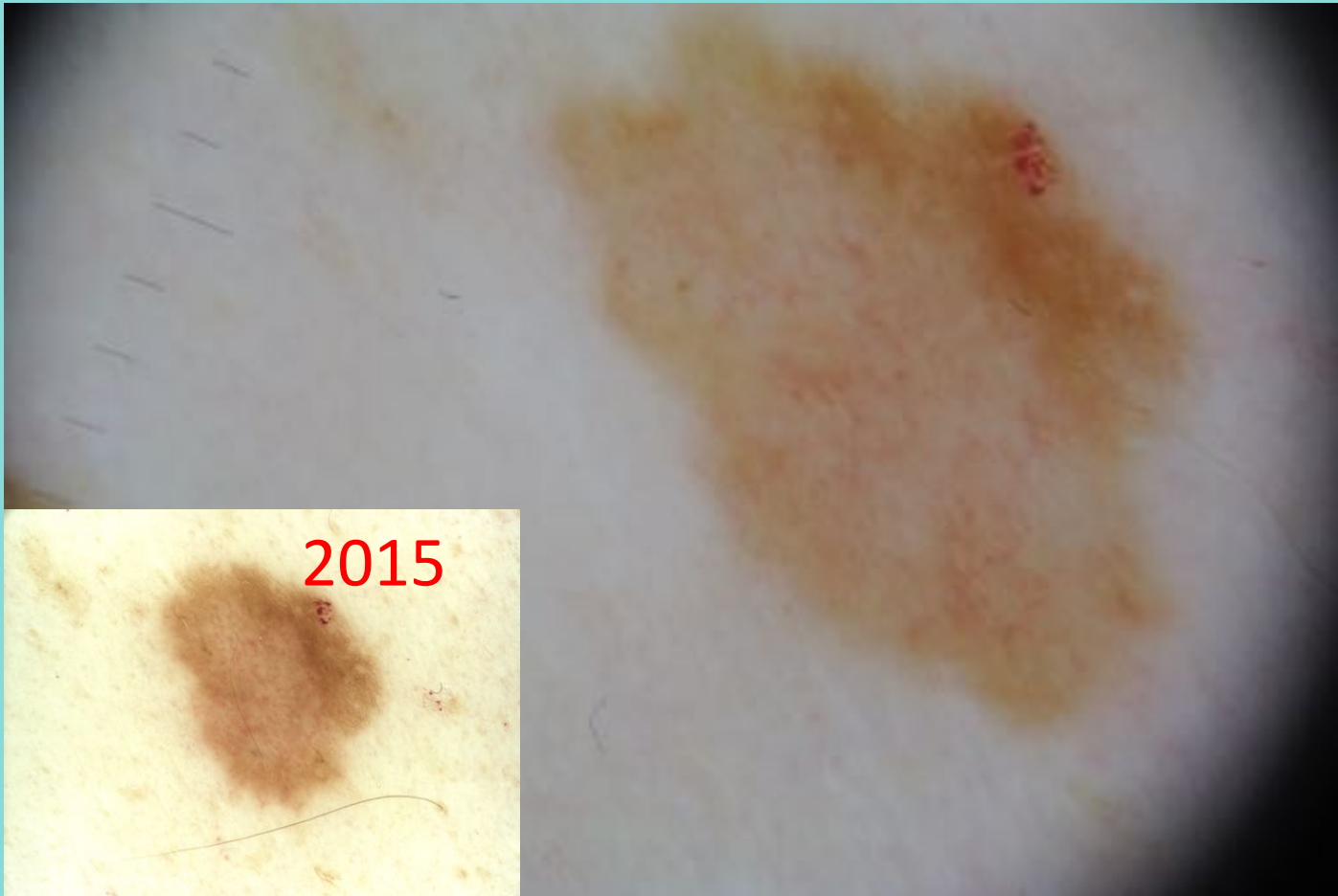
**Don't kid yourself**

**It is going to happen to you (or  
your loved ones)**



# The power of digital imaging





**Diagnose**

Malignes Melanom vom SSM-Typ in situ (siehe Kommentar)  
(Rücken rechts)

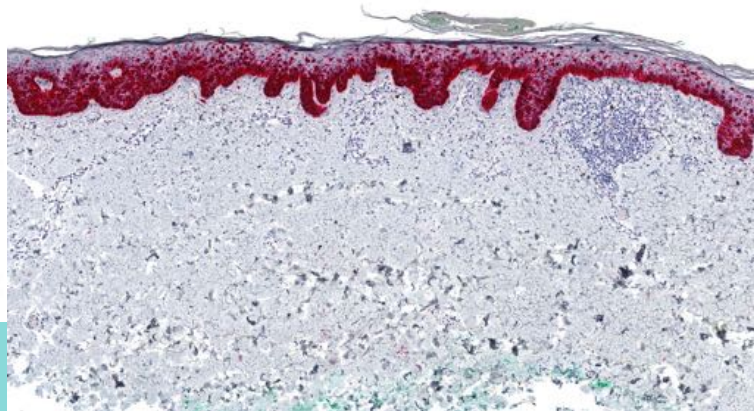
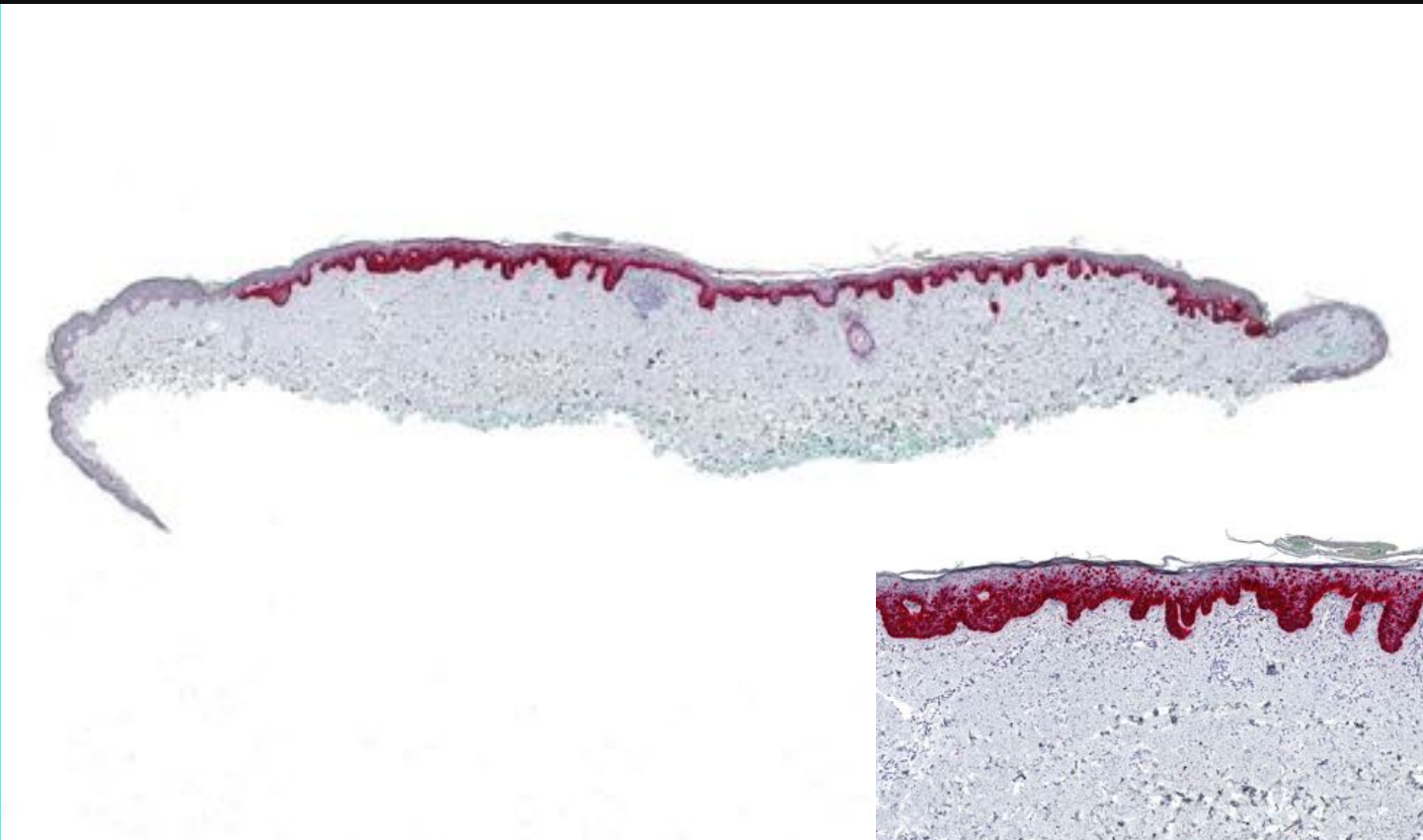
TNM-Klassifikation (AJCC, 7. Auflage, 2010): pTX

Die Exzisionslinien verlaufen alseits ausserhalb der Läsion (Shaveexzision).

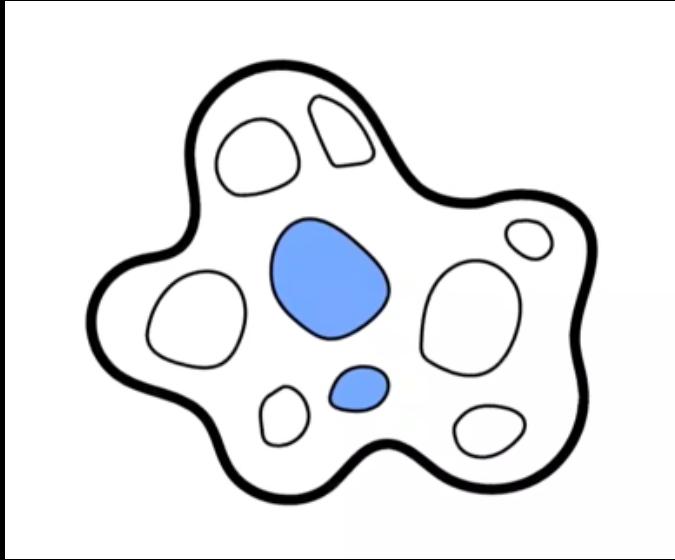




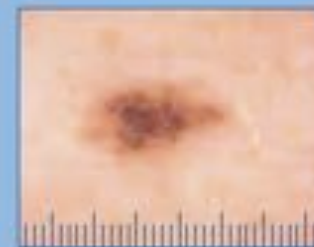
**digital imaging saved my life, it will save yours**



# Pattern recognition ABCD



Harmloses Pigmentmal

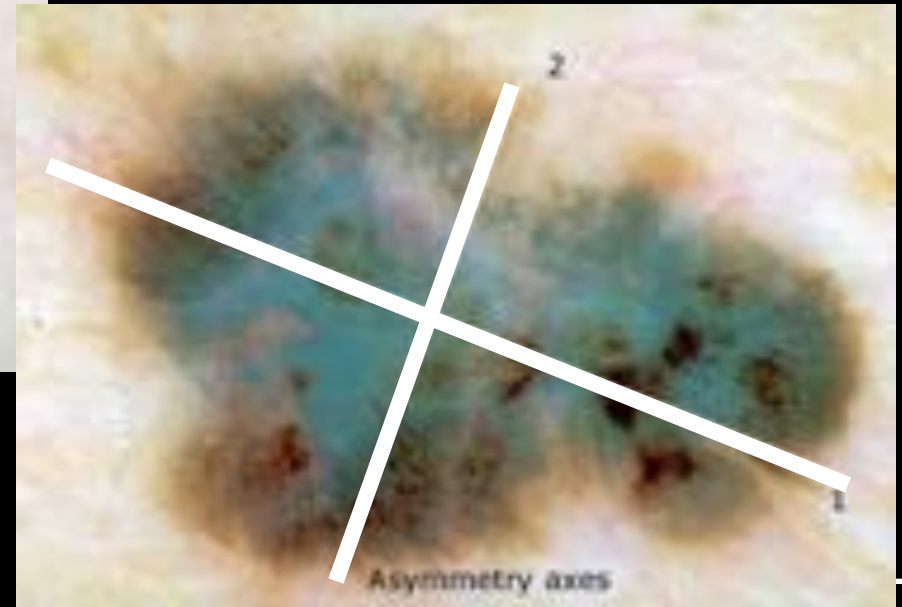
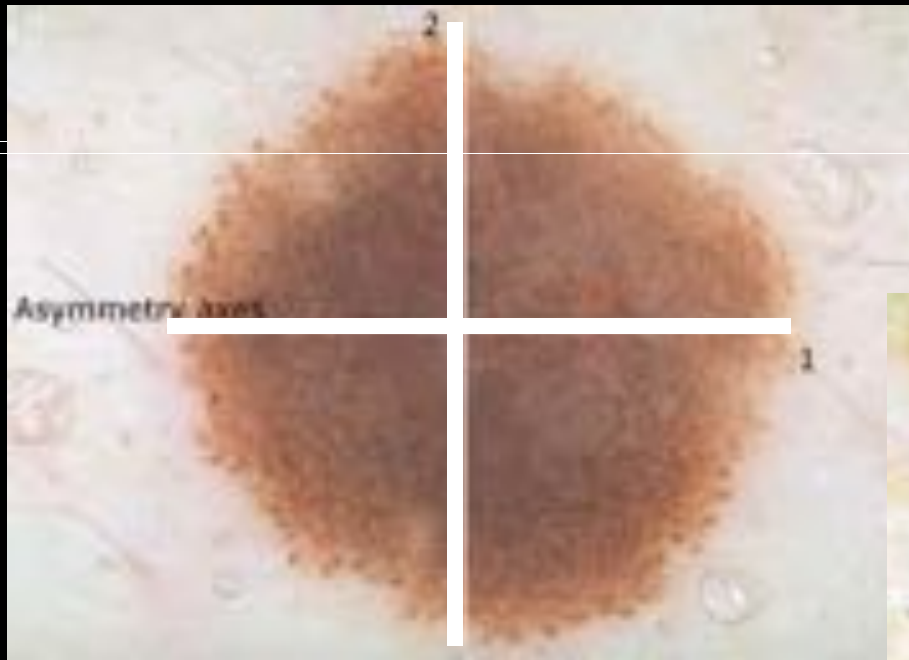


Verdächtiges Pigmentmal, ist dem Dermatologen zu zeigen

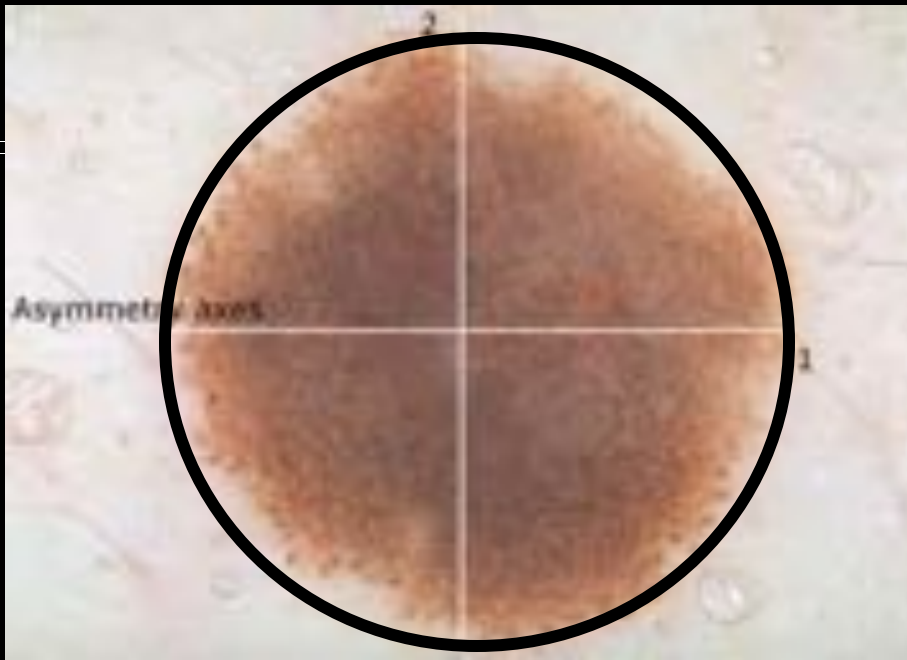


Melanom, in Form und Farbe unregelmässig, muss sofort behandelt werden

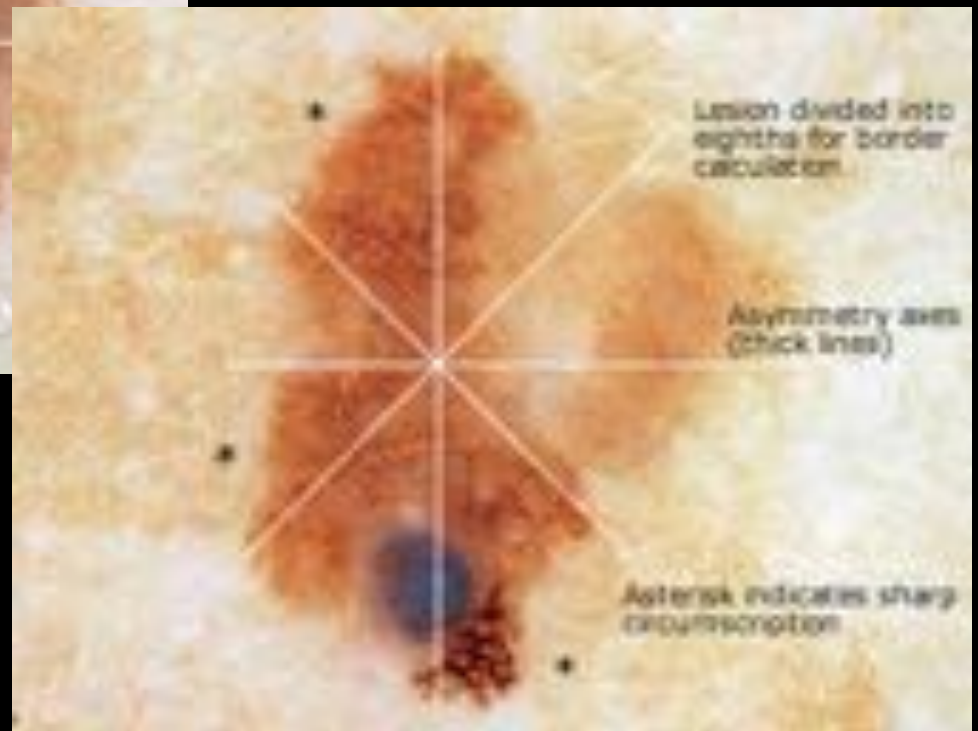
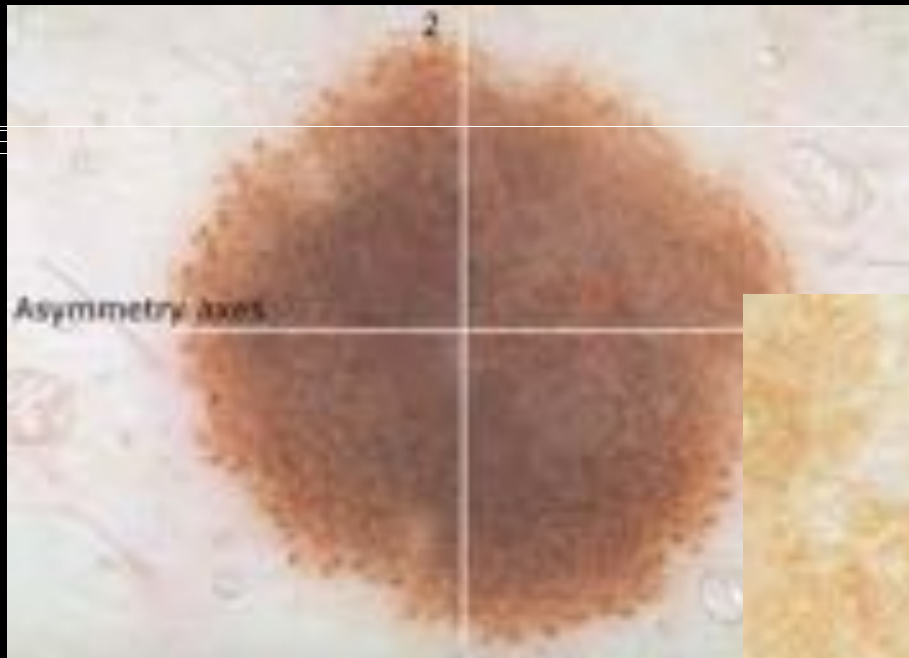
# ABCD



# ABCD

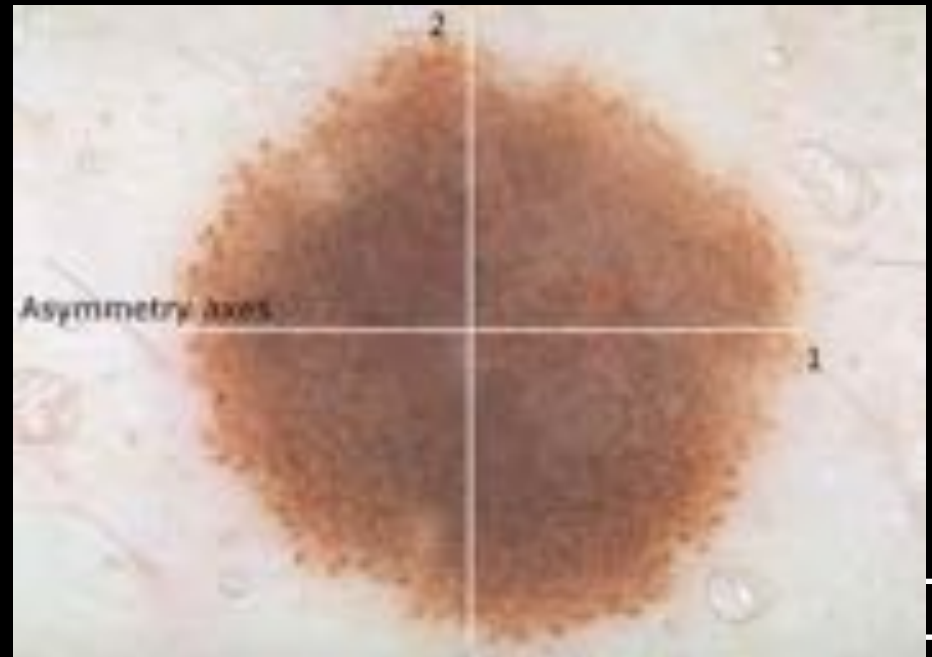
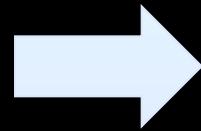
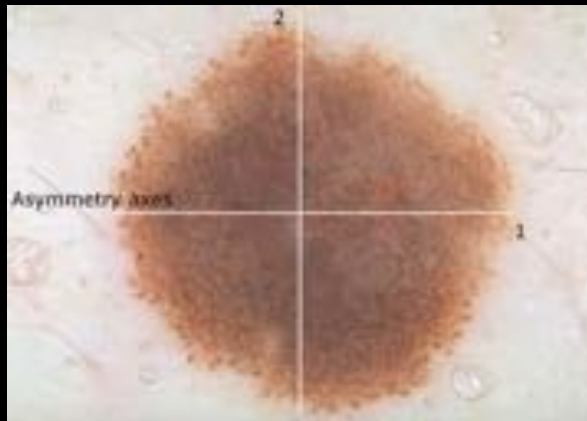


# ABCD

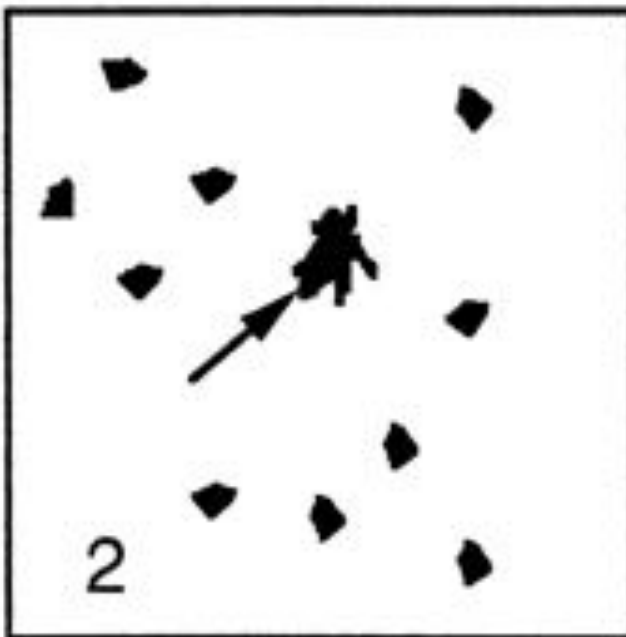
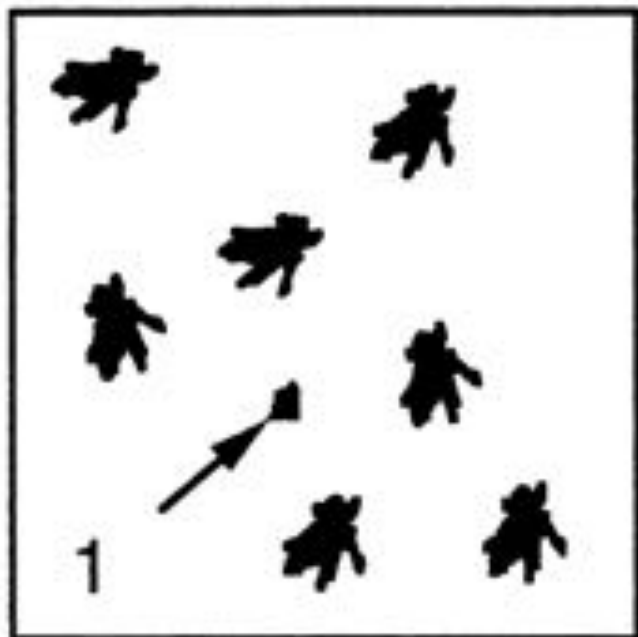
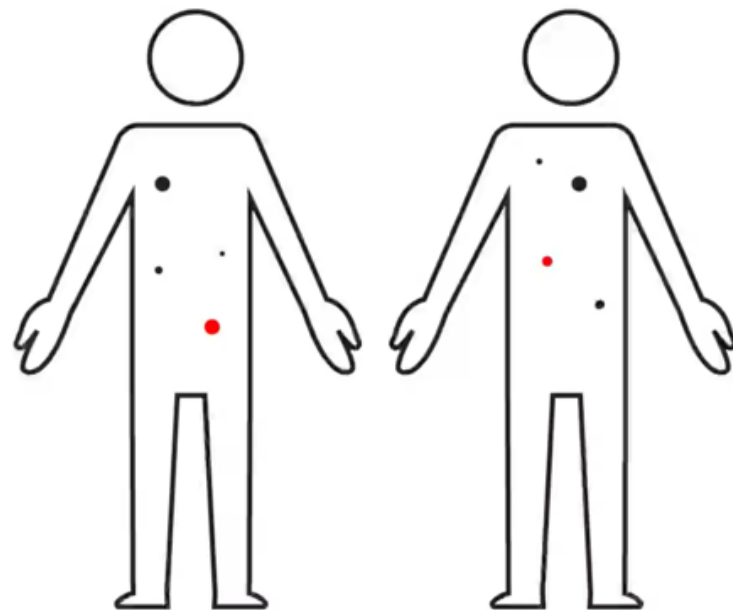




# ABCD

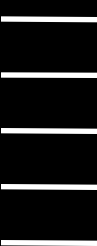
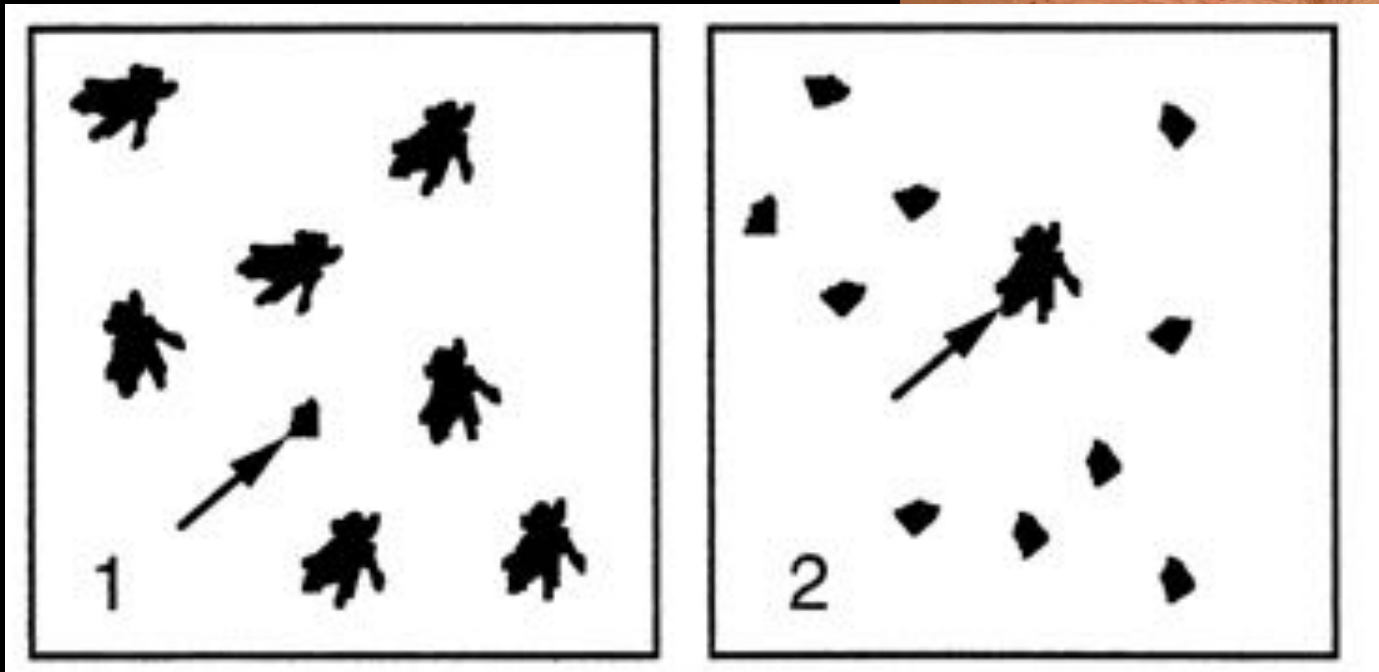


# Ugly duckling sign





# Muster Hässliches Entlein











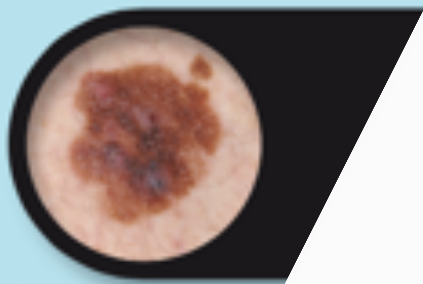




# Heuristics of detecting melanoma



Don't miss it!



Melanom

Muttermal

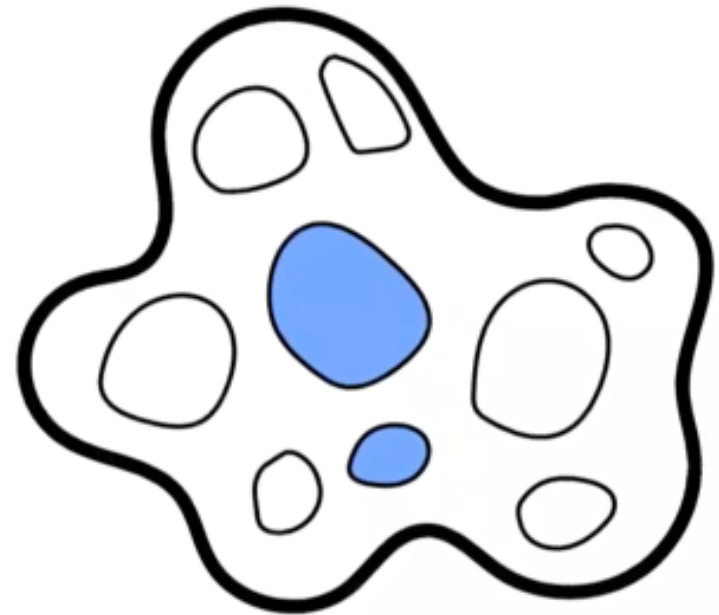
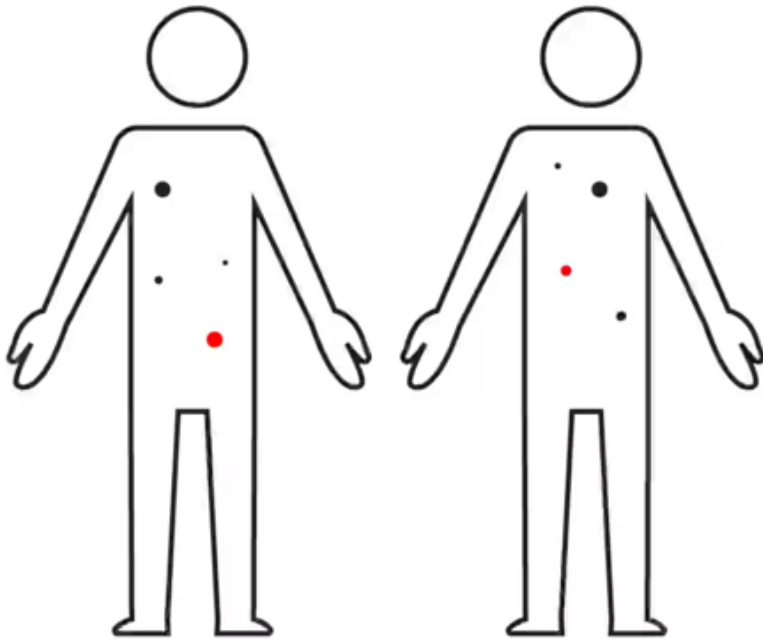
# *heuristic principles*

**rule of thumb**  
**simple**  
**fast**  
**economical**  
**robust**  
**transparent**  
**easy to learn**



✓ **Judgement under uncertainty**

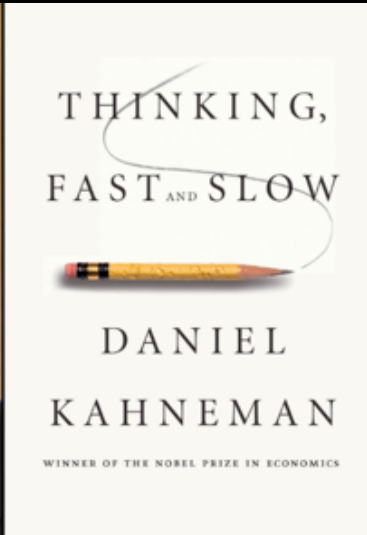
# *heuristic principles – melanoma*



✓ **Judgement under uncertainty**



# heuristic principles



Gerd Gigerenzer | Kopf oder Bauch: Wer entscheidet besser? (NZZ Standpunkte 2015)



# ✓ Judgement under Uncertainty

ALLERGIEPRAXIS  
HAUTPRAXIS  
IMMUNOLOGIE



# ✓ Judgement under Uncertainty



Wie fängt man einen Ball?

BERECHNE DIE FLUGBAHN:

$$z(x) = x \left( \tan \alpha_0 + \frac{mg}{\beta v_0 \cos \alpha_0} \right) + \frac{m^2 g}{\beta^2} \ln \left( 1 - \frac{\beta}{m} \frac{x}{v_0 \cos \alpha_0} \right)$$

# ✓ Heuristic perspective



Blickheuristik



# Heuristics

Standpunkte •

## SUMMARY POINTS

1. Heuristics can be more accurate than more complex strategies even though they process less information (less-is-more effects).
2. A heuristic is not good or bad, rational or irrational; its accuracy depends on the structure of the environment (ecological rationality).
3. Heuristics are embodied and situated in the sense that they exploit core capacities of the brain and their success depends on the structure of the environment. They provide an alternative to stable traits, attitudes, preferences, and other internal explanations of behavior.
4. With sufficient experience, people learn to select proper heuristics from their adaptive toolbox.
5. Usually, the same heuristic can be used both consciously and unconsciously, for inferences and preferences, and underlies social as well as nonsocial intelligence.
6. Decision making in organizations typically involves heuristics because the conditions for rational models rarely hold in an uncertain world.

et besser? (NZZ Standpunkte 2015)





THINKING,  
FAST AND SLOW



DANIEL  
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS



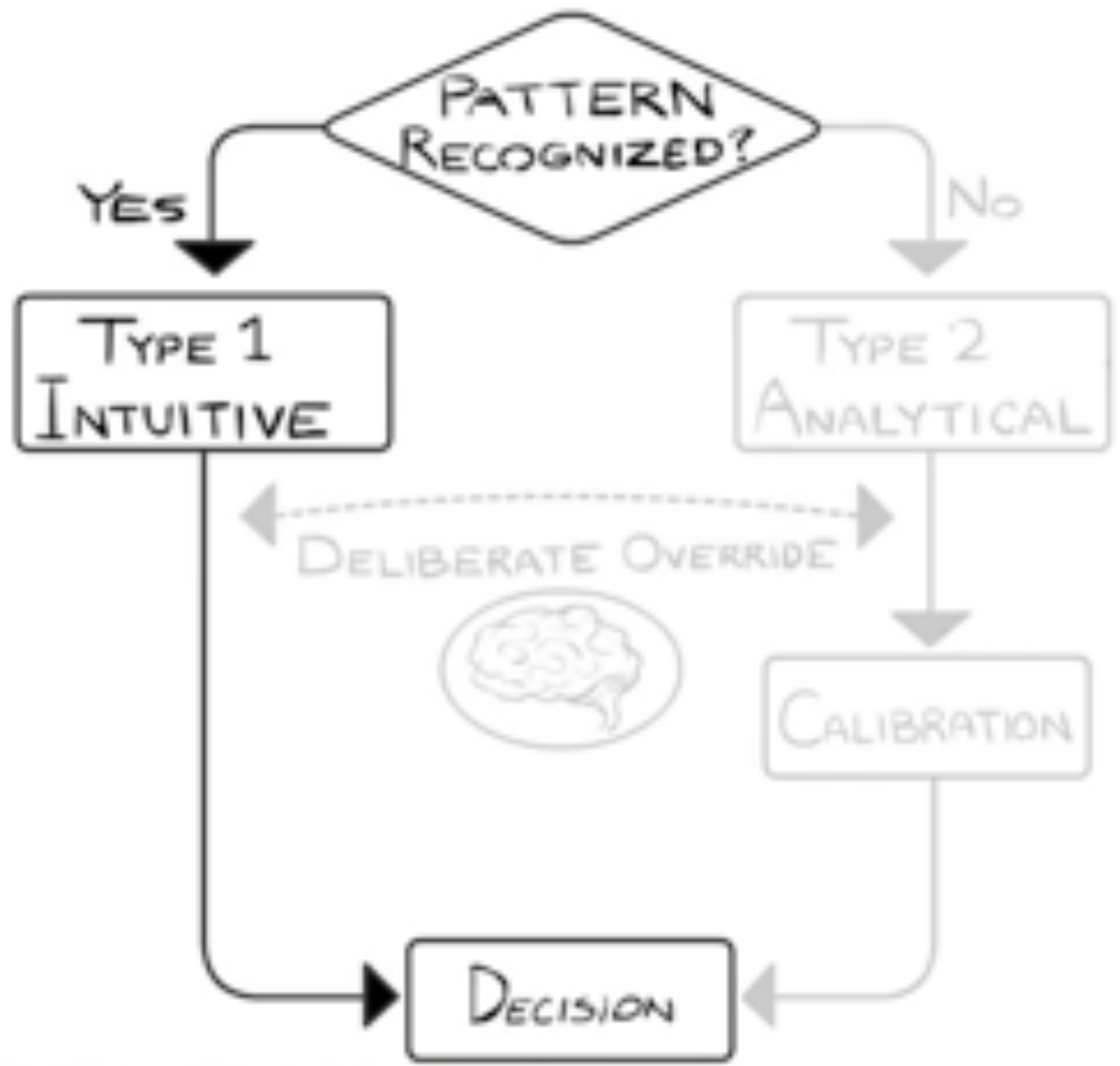


something you did. It just happened.

look at the following problem:

$$17 \times 24$$

immediately that this is a multiplication problem, a



TVERSKY & KAHNEMAN, 1974  
KLEIN, 1997  
CROSKERRY, 2009  
KAHNEMAN, 2011

# LOGIK ODER INTUITION?

## BEKANNTE RISIKEN ("RISK"):

*Wie soll man Entscheidungen treffen wenn alle Alternativen, Konsequenzen und Wahrscheinlichkeiten bekannt sind?*

**Logik, Statistik**

## UNBEKANNTE RISIKEN ("UNCERTAINTY"):

*Wie soll man Entscheidungen treffen wenn NICHT alle Alternativen, Konsequenzen und Wahrscheinlichkeiten bekannt sind?*

**Intuition, Heuristik**

Gigerenzer & Selten Eds. 2001. *Bounded rationality: The adaptive toolbox*, MIT Press  
Gigerenzer, Herrwig & Pachur Eds. 2011. *Heuristics: The foundations of adaptive behavior*, OUP

**Logik *und* Intuition**

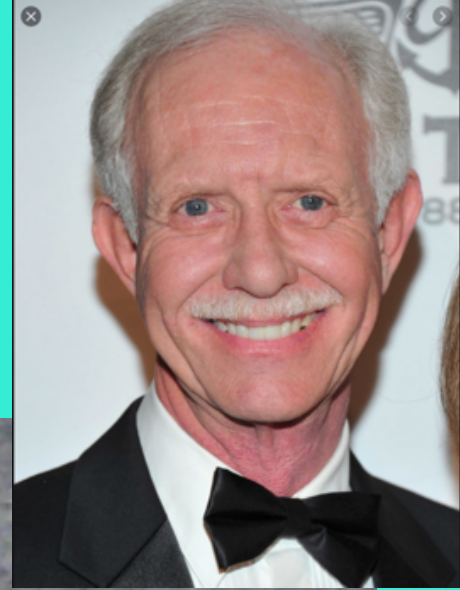


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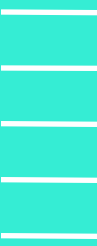








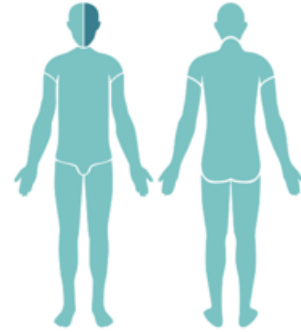
# Heuristics in Dermatology



# Heuristics Number 1 (out of 7)

**asymmetric skin lesions  
=  
infection or oder tumor**

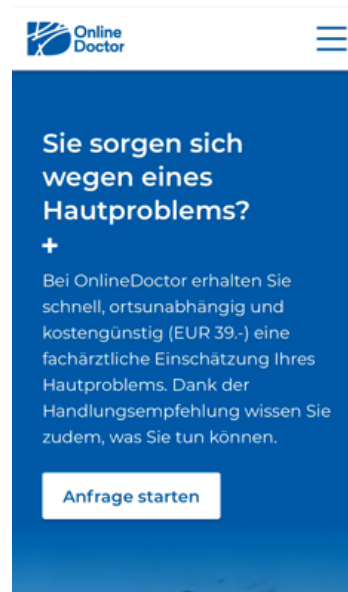
Wo tritt ihr Hautproblem auf?







# OnlineDoctor is based on heuristics concepts





# OnlineDoctor at work....proof positive

+

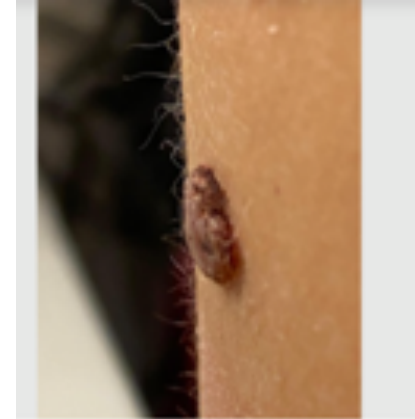
**Meine allgemeine Beurteilung und Empfehlung**

+ Textvorlage einfügen  
■ Textvorlage speichern

Allgemeine Beurteilung  
**Muttermal tw mit Einblutung**

Handlungsempfehlung  
Sg Frau   
zunächst gratuliere ich Ihnen zu den hervorragenden Aufnahmen, ich kann Entwarnung geben: auf den vorliegenden (ausgezeichneten) Bilder liegt/liegen harmlose altersentsprechende Hautveränderung vor.  
Nur wenn das Mittermal stört, kann man das entfernen, eine Exzision ist somit medizinisch nicht indiziert.

Statistische Angaben



02



03





@Cawelry

*Are you  
concerned about  
the increase in  
artificial  
intelligence?*

*No, but I'm  
concerned about  
the decrease in  
real intelligence.*



”

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